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US005367588A

United States Patent [19]

Hill et al.

[11] **Patent Number:** 5,367,588[45] **Date of Patent:** Nov. 22, 1994

[54] **METHOD OF FABRICATING BRAGG GRATINGS USING A SILICA GLASS PHASE GRATING MASK AND MASK USED BY SAME**

[75] **Inventors:** Kenneth O. Hill, Kanata; Bernard Y. Malo, Gatineau; Francis C. Bilodeau; Derwyn C. Johnson, both of Nepean, all of Canada

[73] **Assignee:** Her Majesty in Right of Canada as represented by the Minister of Communications, Ottawa, Canada

[21] **Appl. No.:** 969,774

[22] **Filed:** Oct. 29, 1992

[51] **Int. Cl.⁵** G02B 6/34; G02B 6/12; H01L 31/18

[52] **U.S. Cl.** 385/37; 385/14; 385/129; 385/130; 385/147; 359/566; 359/569; 359/573; 359/900; 437/4; 437/51

[58] **Field of Search** 385/14; 37, 129, 130, 385/131, 147; 359/558, 559, 562, 566, 569, 571, 573, 576, 900; 437/51; 430/4

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[57] ABSTRACT

An index grating is imprinted in the core of an optical fiber using a specially designed silica glass phase grating mask. The phase mask is held in close proximity to the optical fiber. Laser irradiation of the phase mask with ultraviolet light at normal incidence imprints (photoinduces) into the optical fiber core the interference pattern created by the phase mask.

29 Claims, 4 Drawing Sheets

